



## Verification of Air Pollution Control Technologies

### Technology Profile: Baghouse Filtration Products

#### Brief Description

Baghouse filtration products (BFPs) are filtration fabrics used throughout industry to collect particulate matter. The fabrics are sewn into bags used in fabric filters (baghouses) that are efficient for collecting particles across a wide size range. For Environmental Technology Verification (ETV) testing, the fabrics are often composed of a coarsely woven fabric (scrim) between two felt layers attached to the scrim by a needling process. Scrimless felts are also produced. The BFPs submitted to the ETV program are designed to collect particles 2.5  $\mu\text{m}$  (micrometers) and smaller in aerodynamic diameter ( $\text{PM}_{2.5}$ ) with high efficiency. Filter bags may be used for up to several years before requiring disposal.

#### Why does industry want BFP performance verified?

In anticipation of requirements limiting the amount of  $\text{PM}_{2.5}$  that may be emitted from industrial processes, filter fabric vendors are designing new fabrics that effectively collect such particles. Industrial users of the fabrics desire assurance that the new fabrics will perform properly. Objective and credible performance data are obtained because a qualified third party, independent of the BFP vendors, performs verification testing using stakeholder-reviewed protocols and EPA-approved quality assurance criteria. Reports of these results contain verification statements signed by responsible EPA and APCTVC officials and thus provide a valuable marketing tool for manufacturers/vendors and a useful resource for BFP users, permittees, consultants, and other interested parties.

#### Whose technologies have been verified?

The performance of 14 BFPs supplied by 11 manufacturers has been verified. The verification statements and verification reports are available at <http://etv.rti.org/apct/documents.cfm>.

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<b>BHA Group, Inc.</b> <b>Products</b> – QG061; QP131  8800 East 63 <sup>rd</sup> Street Kansas City, MO 64133 Web: <a href="http://www.bhagroup.com">www.bhagroup.com</a> E-mail: <a href="mailto:mmoreano@bhatechnologies.com">mmoreano@bhatechnologies.com</a> Contact: Marc Moreano Phone: 816-356-8400	<b>BWF America, Inc.</b> <b>Product</b> – Grade 700 MPS Polyester Felt  7453 Empire Drive #340 Florence, KY 41042 Web: <a href="http://www.bwf-america.com/home.htm">www.bwf-america.com/home.htm</a> E-mail: <a href="mailto:cscoble@bwf-america.com">cscoble@bwf-america.com</a> Contact: Clinton Scoble Phone: 606-282-4550	<b>Inspec Fibres</b> <b>Product</b> – 5512BRF  11 Tammie Road Hopedale, MA 01747 Web: <a href="http://www.p84.com">www.p84.com</a> E-mail: <a href="mailto:kspindola.inspec@verizon.net">kspindola.inspec@verizon.net</a> Contact: Kenneth Spindola Phone: 508-478-2414
<b>Menardi-Criswell</b> <b>Product</b> – 50-504  One Maxwell Drive Trenton, SC 29847 Web: <a href="http://www.menardifilters.com">www.menardifilters.com</a> E-mail: <a href="mailto:sbell@menardifilters.com">sbell@menardifilters.com</a> Contact: Sheri Bell Phone: 803-663-6551	<b>Polymer Group, Inc.</b> <b>Product</b> – DURAPEX™ PET  201 North Church Street, Suite 619B Mooresville, NC 28155 Web: <a href="http://www.polymergroupinc.com">www.polymergroupinc.com</a> E-mail: <a href="mailto:HaoP@pginw.com">HaoP@pginw.com</a> Contact: Ping Hao Phone: 704-799-9504	<b>Standard Filter Corp.</b> <b>Product</b> – PE16ZU  5928 Balfour Court Carlsbad, CA 92008 Web: <a href="http://www.standardfilter.com">www.standardfilter.com</a> E-mail: <a href="mailto:toby@standardfilter.com">toby@standardfilter.com</a> Contact: Toby Wilk Phone: 760-929-8559 ext. 116
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## **Why are BFPs important to environmental protection?**

Many industrial processes emit particles that are detrimental to human health and the environment. Particles 2.5  $\mu\text{m}$  in aerodynamic diameter and smaller are of principal concern. One means of reducing the quantity of these particles is by filtration with fabrics that are especially designed for capturing small particles

## **General Market Information**

### **How much do BFPs cost?**

The price for individual BFPs, as filter bags, varies depending on size, fabric type, and bag design. Bags may cost from approximately \$10 to more than \$200 each.

### **Who are the users of BFPs?**

Companies that have particle-producing operations for which control of  $\text{PM}_{2.5}$  is required purchase BFPs, in the form of bags for baghouses. Particle-emitting facilities of all sizes can use baghouses for effective control of  $\text{PM}_{2.5}$ .

## **General Test Information**

### **Which ETV center is evaluating BFPs?**

The Air Pollution Control Technology Verification Center (APCTVC) is part of the U.S. EPA's Environmental Technology Verification Program and is operated as a partnership between RTI and EPA. The objective of the APCTVC is to verify the performance of commercially ready air pollution control technologies, such as BFPs. RTI ([www.rti.org](http://www.rti.org)) is an independent nonprofit organization that serves government and industry clients in the U.S. and abroad.

### **What factor is verified in the BFP tests?**

The basic performance factor being verified is particle filtration efficiency for particles 2.5  $\mu\text{m}$  in aerodynamic diameter or smaller. Total particle removal efficiency and pressure drop are also reported. The APCTVC developed a generic verification protocol for testing filtration efficiency that is adapted from a German test method developed by the Verein Deutscher Ingenieure, VDI Method 3926 ([etv.rti.org/apct/pdf/GVP\\_Revised.pdf](http://etv.rti.org/apct/pdf/GVP_Revised.pdf)). The protocol was developed by ETS, Inc. and RTI, reviewed by a technical panel of experts, and approved by EPA. A Test/Quality Assurance Plan ([etv.rti.org/apct/pdf/baghouse\\_qa\\_plan.pdf](http://etv.rti.org/apct/pdf/baghouse_qa_plan.pdf)) was prepared that addresses the quality assurance and quality control requirements for obtaining verification data of sufficient quantity and quality to satisfy the data quality objectives.

### **When were the tests conducted?**

The first round of tests (nine BFPs) was conducted during March-July 2000. The second round of tests (four BFPs) was conducted during January-April 2001. The third round of tests (two BFPs) was conducted during January-April 2002.

## **For more information, contact:**

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